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TYPES OF MACHINE TOOLS
TO BE PRODUCED IN 1949

The workers of the machine-tool-building industry are making rapid improvement in the types of machine tools being produced in the third year of the Five-Year Plan. Among the scientific-research institutes and special design bureaus of the Ministry of Machine-Tool Building working with plant collectives are the ENIMS (Experimental Scientific Institute for Metal-Cutting Machines), VNII (All-Union Scientific Research Institute for Cutting Tools), VNIASH, NIBV, SKB-1 (Special Design Bureau-1), and others.

The Krasnyy proletariy Plant has perfected and put into experimental production Model 1A62 high speed lathes and is preparing to put them into large-scale series production in 1949. The plant has also designed and built experimental models of the Model 1620 high-speed lathes (3,000 spindle revolutions per minute) and a Model 1284 six-spindle vertical automatic machine having a working diameter of 400 millimeters.

The Plant imeni Sverdlov has perfected series production of a Model 262G horizontal-boring machine and built a Model 262I high-speed horizontal-boring machine (2,000 spindle revolutions per minute) which effectively utilize a hard alloy cutting tool while working steel, cast iron, and light alloys. In addition, the plant has perfected a new design of Model 262D horizontal-boring machine with a spindle diameter of 110 millimeters.

The Kharkov Machine-Tool Plant imeni Molotov put into production Model 315I universal cylinder- and cone-grinding machine. The designers' collective of the Machine-Tool Plant imeni S. Ordzhonikidze built a high-duty six-spindle automatic lathe of original design.

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The types of universal machine tools which have been prepared for series production in 1949 have been radically changed in comparison with 1948. This can be seen from the following table.

Name of Machine Tool	1948 Model			New or Modernized 1949 Model		
	Model	Spindle RPM	Capacity of Main Drive (kw)	Model	Spindle RPM	Capacity of Main Drive (kw)
Universal screw-cutting lathe	1D62M	To 600	4.3	1A62	To 1,200	7.8
Universal screw-cutting lathe	1615	20-580	1.5	161	To 1,000	2.2
Universal screw-cutting lathe	1D63	To 448	7.8	1D63	750	10
Turret lathe	1M36	To 725	7.2	1M36	43.5-1,000	10
Universal turret lathe	1325	140-1380	2.2	135A	120-2400	3.2
Horizontal boring machine	262G	15-750	4.5	262G	1,000	7.2
Universal cantilever milling machine size No 2	6B82	35-750	4.3	6B82	30-1,500	5.8 (7.8)
Horizontal cantilever milling machine, size No 2	6B82G	35-750	4.3	6B82G	30-1,500	5.8 (7.8)
Vertical cantilever milling machine, size No 2	6B12	35-750	4.3	6B12	30-1,500	5.8 (7.8)
Universal vertical drilling machine	2125	73.5-730	2.2	2121	70-272	3.2

Special machine tools for ferrous metallurgy have been built. Two shafts are machined simultaneously on the Model MK-143 semiautomatic profile lathe for turning complicated profiles of pilger shafts. This machine weighs about 90 tons; the capacity of the main drive is 34 kilowatts.

Sixteen new types of special pipe- and sleeve-cutting tools have been designed and a considerable part of them produced for the metallurgical and petroleum industry as well as for geological prospecting. Complex cutting tools for cutting pipes and sleeves having dimensions from $1\frac{1}{2}$ to $16\frac{3}{4}$ inches have also been designed and produced.

Model 1A947 roll lathes having working diameters to 1,300 millimeters and work length to 7,000 millimeters are being manufactured for ferrous metallurgy. The machine tool for drilling rail ends (kontsov rel'sov) is among the combination machine tools which are being used in ferrous metallurgy. The introduction of these machine tools has increased labor productivity. One combination machine tool replaces ten universal radial-drilling machine tools and thus frees not less than ten operators.

Series production of machine tools of original Soviet design for machining locomotive axles has been developed and perfected. This machine tool excels that of any foreign firm in its technical perfection. The machine tools are completely automatic and through Leonard's combination machine assure constant cutting speed while facing and hollow-chamfering the axles. Both ends of the axle are machined simultaneously. The tool's capacity is 48 kilowatts.

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Combination eight-spindle vertical machine tools for deep boring of the "Teta" locomotive drawbar have been developed and put into production. Each machine of this type replaces 10 - 12 universal machine tools and frees up to ten workers.

The introduction of special and combination machine tools in agricultural machine building has brought about the conversion of production to conveyor-belt methods. An automatic transfer line has been set up for manufacturing reaping machine frames at the Lyubertskiy Agricultural-Machine Building Plant.

Model A649 high-duty 24-spindle combination drilling machines for working structural steel for railroad and automobile bridges have been designed and manufactured for enterprises of the Ministry of Transportation.

The six-spindle semiautomatic vertical lathe of the Krasnyy proletariy Plant has a working diameter up to 400 millimeters. This lathe, extensively used in the automobile and tractor industry, has a productive capacity eight to ten times greater than the conventional lathe. Model GFl4 for simultaneous milling of 12 flanges (shchek) of a crankshaft at the ZIS Plant increased productive capacity five to six times over that of the single-spindle milling machine. The Model C-3-2 special thread-milling machine for milling global worms of automobile steering gears takes only one minute per worm.

A number of special and high-duty precision machine tools and automatic machines were built for the bearing industry. The Model MSh26 automatic machine for polishing surface of roller faces, manufactured at the MSZ, produces more than 1,000 rollers per hour. The productive capacity of the Model MSh23 semiautomatic machine for polishing outer wheel races having a diameter to 500 millimeters is up to ten times greater than that achieved under previous methods of polishing.

Press-forging machine building under the Ministry of Machine-Tool Building took a step toward further development in 1948. At the Tyazhstankogidropress Plant the manufacture of V375U-1 hydraulic units for baling cotton was perfected. This modernly designed unit with automatic control mechanizes the heaviest operation (ramming) and frees the railroads from the unprofitable transportation of unpressed cotton.

Production of hydraulic presses for testing pipes having diameters from $1\frac{1}{2}$ to 6 $\frac{5}{8}$ inches are being perfected at this plant at the present time. These presses are needed by the metallurgical industry for equipping modern high-production pipe-rolling shops.

New models of press-forging equipment have been perfected and are still being improved. Among them are Model M417 pneumatic forging hammer, 750 kilograms; steam-air forging hammers, 2 and 3 tons; embossing presses, 160 and 700 tons; a friction press, 300 tons; presses for trueing pipes, 350 tons; and Models A910 and A912 automatic universal bending machines.

At a number of machine-tool plants the speed of machining steel is reaching 500 - 750 meters per minute. The Krasnyy proletariy Plant, Srednevolga Plant, Kalibr Plant and the Frezer Plant are preparing to start conveyor-belt production of new-model machine tools in 1949.

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